



NC Department of Environment and Natural Resources Information Technology Plan FY 2007 – 2009 Biennium

Revision History

October 1, 2006 – REV 0

THE MANDATE

§ 147-33.72B. Planning and financing State information technology resources.

(a) In order to provide a systematic process for meeting the State's technology needs, the State Chief Information Officer shall develop a biennial State Information Technology Plan (Plan). The plan shall be transmitted to the General Assembly by February 1 of each regular session.

(b) The Plan shall include the following elements:

- (1) An inventory of current information technology assets and major projects currently in progress. As used in this subdivision, the term "major project" includes projects subject to review and approval under G.S. 147-33.72C, or that cost more than five hundred thousand dollars (\$500,000) to implement.
- (2) An evaluation and estimation of the significant unmet needs for information technology resources over a five-year time period. The Plan shall rank the unmet needs in priority order according to their urgency.
- (3) A statement of the financial requirements posed by the significant unmet needs, together with a recommended funding schedule for each major project currently in progress or recommended for initiation during the upcoming fiscal biennium.
- (4) An analysis of opportunities for statewide initiatives that would yield significant efficiencies or improve effectiveness in State programs.

(c) Each executive agency shall biennially develop an agency information technology plan that includes the information required under subsection (b) of this section. The Office of Information Technology Services shall consult with and assist agencies in the preparation of these plans. Each agency shall submit its plan to the State Chief Information Officer by October 1 of each even-numbered year. (2004-129, s. 2.)

THE PLAN

Chapter 1 – DENR Strategic Business Initiatives and Major Business Requirements (Significant business areas that IT must enable or support)

DENR will advance three major initiatives in the 2007 – 2009 planning biennium. One is comprehensive management and planning for statewide Natural Resource Conservation. Under the leadership of an assistant secretary for natural resources, DENR will bring together diverse business units to focus on a

statewide plan to preserve land and water systems for public use and to ensure that working lands and waters are sustainable. A second initiative is a collaborative environmental planning strategy that focuses on NC's 17 river basins. Every North Carolina citizen lives in a riverbasin and our activities impact the basin either for benefit or detriment. Regulatory business units will now be organized under the leadership of an assistant secretary for environment to integrate program areas for responsive protection of the environment. A third major focus in support of these two areas is Information Systems. DENR has elevated the position of Chief Information Officer (CIO) to agency executive staff level within the function of an assistant secretary for information systems and intends to transform the delivery of IT services department-wide.

1. DENR Mission

To conserve and protect North Carolina's natural resources and to maintain an environment of high quality, for the health, well being and benefit of all.

2. DENR Vision

Together through innovation, teamwork, and partnerships, achieve:

- a cleaner environment,
- better conservation, protection, restoration, and enhancement of our natural resources,
- healthier lives,
- a stronger economy, and
- greater understanding of the interconnection and interdependence of people, other living things, and natural systems, for the health, well being and benefit of all, now and in the future.

3. DENR Strategic Directions

- a. Stewardship that sustains natural, environmental, economic and cultural resources.
- b. Optimum efficiency, effectiveness, and customer satisfaction in all operations.
- c. Systems-based integrated planning and management ensuring multiple benefits and outcomes.
- d. Awareness and behavioral change through education.

4. Financial Drivers

- a. Government Funding Sources: Revenue streams are tightly controlled and limited whether the source is state appropriations, federal grants, or user-based receipts. Funding availability is more

likely to go down than up (requiring expense reduction). This is a prime consideration in planning IT investments.

- b. **Results Based Budgeting (RBB):** The Office of State Budget and Management will require measurable results as an integral part of state budgeting in 2007 – 2009 to encourage efficient and effective management of state resources.
- c. **Expansion Budget 5% cap:** Agency requests for expansion cannot exceed 5% of current budget. The seemingly inherent high cost of IT compared to other business line items causes a disproportionate burden on the expansion budget and a threat to the funding of remaining business needs.

5. Technology Control Drivers

DENR and other State Agencies will need to address expectations of Senate Bill 991, associated state requirements and initiatives.

- a. **Statewide Agency Consolidation Project**
In response to SB 991, “An Act to Improve State IT Efficiency & Project Management”, and the OSBM Report titled “Information Technology Systems: Consolidation and Management Since Senate Bill 991”, dated January 2006, DENR has named an assistant secretary for information systems (ASIS) as Chief Information Officer (CIO). The ASIS/CIO reports to the Secretary and is in the process of moving DENR’s decentralized IT structure toward a centralized IT structure with the objective of controlling 100% of the IT resources and spending.
- b. **ESAP and Other Security Requirements**
At the time of writing this plan (September 2006), agencies have a March 2007 deadline for ESAP alignment and compliance. DENR will have a better understanding of the full cost of ESAP compliance before planning too many IT initiatives for fiscal year 2007, because security needs may overwhelm the budget.
- c. **BEACON**
The statewide HR/Payroll system is an exciting opportunity to move the most basic business functions into a state-of-the-technology environment. Agencies must plan technology readiness now in order to use the system in 2008.
- d. **NCID – North Carolina Identity Management**
Single User ID for all business transactions with the State of North Carolina is needed at the foundation of our plans to move agency

businesses into a self-service environment. Cost projections are needed to plan for expenses associated with NCID.

6. The External Environment

- a. NC population growth is project to be between 50 – 80% by year 2020.
- b. Land Development (and resulting environmental impact) is expected to increase twofold to population.
- c. NC economy is transitioning from agriculture and manufacturing to services and technology.
- d. North Carolina citizens are relying more on technology enabled self-service government. The public expects to make more transactions from their computer at home than physically interacting with government services and staff in an office.

Chapter 2 – Requirements for Transitioning Existing IT Activities/Resources

1. Current Projects

DENR has no changes from current portfolio information. Likely, there will be adjustments to projects within the planning years 2007 – 2009. Project changes will be managed within the UMT/PPM Tool as they present themselves.

2. Applications

DENR has twenty-six (26) applications identified for remediation [online in UMT/Application Portfolio]. These twenty-six (26) applications will be maintained through the current planning horizon (2009) or scheduled for enhancement, replacement, consolidation or retirement when reviewed through DENR's Enterprise Architecture (EA).

The UMT/PPM system projects a roadmap for each application. These roadmap projections will be revised in the next two years as we align application needs with DENR's EA.

In 2007 – 2009, DENR will begin leveraging existing application modules already developed in the IBEAM (Internet Based Enterprise Application Management) framework to implement cost effective remediation of projects. Under the EA, DENR expects to identify specific program areas that can collaborate on IBEAM module development for mutual gain and cost reduction.

If DENR plans remediation now, outside of the EA framework, we risk duplication of remedies. If we plan remediation within the EA framework, we will have better chance of identifying business similarities that lend themselves to collaboration.

Still, three (3) DENR business units own nine (9) of the twenty-six (26) legacy applications requiring remediation, but are not included in the first phase of DENR's EA. These business owners are the Division of Purchase and Services, Parks and Recreation, and the Zoological Park. Their applications are identified in the UMT/PPM system as follows:

a. Zoological Park Applications

- i. **ARKS** – Animal Collection Record Keeping
- ii. **MEDARKS** – Animal Collection Medical Record Keeping
- iii. **SPARKS** – Animal Collection Genetic Information

The UMT / Application Portfolio lists these three applications as scheduled for retirement in 2006, but they will be extended through the current planning horizon (2009) and be replaced with a new web based system called the Zoological Information Management System (ZIMS) sometime in the 2007 – 2009 biennium. The NC Zoological Park is required to use ARKS, and eventually ZIMS, to maintain accreditation with the Association of Zoos and Aquariums (AZA).

These applications are managed and supported by the AZA and distributed to zoos. The cost is absorbed in the AZA dues. The cost figures represented in the UMT / Application Portfolio are minor expenses for in-house assistance (\$1305 per year).

b. Purchase and Services Applications

- i. **Lease Program** – Tracks leasing and property.
This application is currently inactive. The work process is being tracked manually. The Division of Purchase and Services has scheduled the Lease Program to be replaced in fiscal year 2007.
- ii. **Contract Tracking**
The Division of Purchase and Services has scheduled the Contract Tracking program to be replaced in 2007.

c. Parks and Recreation Applications

- i. **PartF** – Tracks grant fund requests and distribution.

Scheduled to be maintained through 2009 and replaced in 2010. Maintenance cost is \$96 per year.

- ii. **PEP** – records and prioritizes new park development projects
Scheduled to be maintained through 2009 and replaced in 2010. Maintenance cost is \$96 per year.
- iii. **Police Pak** – Tracks Law Enforcement Infractions that are documented in the park by citations, tickets or other reporting documents
Scheduled to be maintained through 2009 and replaced in 2010. Maintenance cost is \$638 per year.

3. **Infrastructure Assets**

DENR will begin an asset consolidation project in fiscal year 2007 that is synchronized with a plan to standardize our infrastructure and desktop, and initiate formal IT resource sharing across DENR. See I. B. 4. below.

4. **Operations / IT Management**

Beginning in 2006 and continuing in 2007 – 2009, DENR will focus on:

- standardizing infrastructure and desktop environment
- consolidating IT assets
- centralizing operations
- accounting for the true cost of IT

This continues a major shift in the way we deliver IT services in DENR that began with the development of a standardized application development framework in year 2000 (Internet Based Enterprise Application Management or IBEAM framework). Building on the IBEAM Framework, DENR will organize under an Enterprise Architecture to create a more business driven and business partnering information management system.

Standardized Infrastructure and Desktop

In a decentralized system, independent networks develop with dissimilar hardware, software and security as well as inconsistent policy, standards and procedures (PSPs). This causes the department to spend resources in support of multiple working systems that require increased support, and yield excess capacity. In theory, DENR should have ample resources to run departmental IT. In practice, the resources needed to support multiple systems are never enough. In theory, IT resources should be able to partner across independent networks for mutual support. In practice, the dissimilarities and inconsistencies across independent networks complicate shared arrangements.

To enable an IT workforce that can mobilize across the department for mutual support, DENR will begin the process of formulating its policy, standards and procedures across all business units for all aspects of the computing environment.

In the first quarter of calendar year 2007 (Jan – Mar), DENR will bring together IT practitioners to form standardization workgroups coordinated by the Technology Advisory Committee (TAC). The TAC is a committee of business users from each DENR division. The TAC will propose PSPs for approval by the department's Technology Management Committee (TMC). The TMC is a committee of division directors and executive management who have vested interest in the success of the business units and provide the highest level of input in the department on technology matters.

PSPs should be in place by the summer of 2007. In fiscal years 2007 – 2009, IT budget will reflect the cost of transformation to compliance with the PSPs.

OBJECTIVE: Have initial department-wide PSPs ready to implement with an effective date of July 1 2007. Phase compliance over a period of 1 year, upgrading and retrofitting as budgets allow or life-cycle replacements are made.

TASK: Appoint workgroups through TAC to be ready for activity on or before January 1, 2007.

TASK: Assign facilitator support through the Secretary's Office.

TASK: Communicate PSPs to department business units and IT staff as PSPs develop and ramp implementation in fiscal years 2007 – 2009.

Centralized Operational Control

With department-wide consistency through PSPs, DENR can better organize resources to share across business units. Centralized day-to-day resource management will require some organizational adjustment of departmental IT to absorb oversight responsibilities. Current vision does not anticipate moving staff to new locations, but deploy them as needed from their current base locations. The initial assumption is that DENR IT professionals are well placed throughout the department to respond as needed.

Centralizing operational control will not be a one-size-fits-all approach. Criteria will be developed to guide decisions about the types of services that would benefit from resource sharing and the optimum way to deploy shared resources. The TMC will charter a Centralization Criteria Workgroup by January 1, 2007. The workgroup will make recommendations to the TMC for final consideration on or before March 1, 2007.

OBJECTIVE: Create a departmental oversight structure for day-to-day management of IT personnel by May 2007.

TASK: Appoint staff for expanded responsibility in key IT programmatic areas (project management, application development, infrastructure and desktop support) with a start date no later than July 1, 2007.

TASK: Reallocate positions for IT management or advanced IT practice (technical career track) in FY 2007 – 2009 as positions become vacant or workforce planning pressures dictate need.

Enterprise Architecture

Integral to this organizational and cultural change, DENR is in the process of establishing Enterprise Architecture (EA). The EA is more of a business / management initiative than an IT initiative. DENR is partnering with State ITS on this project and utilizing the professional services of Gartner and Associates.

DENR's EA is to create a governance structure and standardized framework for IT that ensures the business needs of the department drive technology decisions and business units are aligned with each other to share technology. In 2006, the EA is being formally chartered and initiated with the following deliverables in Fiscal years 2007 – 2009:

Name	Contents
Common Requirements Vision	Environment Trends Business Strategies Business Process Change Requirements Information Change Requirements Technology Change Requirements Solution Change Requirements
Conceptual Architecture	Conceptual Architecture Principles Domain Architecture Principles Standards and Guidelines
Future State Architecture Models	Business Process Models Information Models Infrastructure Patterns, Technology Services and Technology Standards Solution Models
Current State Architecture Models	Business Process Installed Base Models Information Installed Base Models Technology Installed Base Solutions Installed Base
Gap Analysis	Candidate Projects Required
Migration Plans	Prioritization of Candidate Projects High Level Project Definitions High-Level Migration Plan
Implementation Plans	Project Proposals (for projects in the tactical planning horizon <1 year future).
Glossary of EA Terms	List of terms used within the context of EA by business and technology practitioners.

OBJECTIVE: Have DENR operating under a first phase EA by March 2007. Meet all deliverables identified in the table above according to a schedule to be determined, but no later than March 2008.

Cost Accounting

DENR is negotiating with the UNC School of Government to develop a full and direct cost accounting system for IT services. State resources often provide services without quantifying the full value. Consequently, business units access these services with grand expectations and little financial investment. The result is IT staff trying to accommodate all requests and extending the timeline on all commitments thereby putting all deliverables at risk. This leaves customers feeling that they have not gotten value, when they cannot even express what they paid for it.

OBJECTIVE: Institute a cost accounting system by September, 2007.

5. Human Resources

DENR IT is undergoing comprehensive change and resource alignment. The recent career banding exercise provided a first approach at characterizing and qualifying competencies within the department. As DENR begins adjusting the department for centralized operational control in a standardized computer environment, we will seek resource alignment with the major service delivery areas.

OBJECTIVE: Develop staff to highest levels possible to meet work demands. Establish or reassign existing state positions for ongoing needs, outsource special time-limited needs.

TASK: Evaluate competencies available in DENR against competencies needed. Position each IT professional to grow in their practice.

TASK: Begin department level input into all IT Staff performance reviews on a schedule linked to the initiation of departmental oversight.

Information Technology Infrastructure Library (ITIL)

DENR has adopted some ITIL practices and uses iWise for support services. In 2007 – 2009, DENR will begin with foundations level ITIL training until consistent service culture is achieved.

DENR will take advantage of the value pricing available through State ITS for ITIL training. Current budget (at time of writing this plan) is approved to train the ASIS/CIO at ITIL foundation level.

OBJECTIVE: Call for specific IT service delivery measures throughout DENR, beginning in January 2007, for a baseline of current level of service and to set future expectations for continuing level of service in

fiscal years 2007 – 2009. Have a service delivery dashboard in place department-wide by March 2008.

OBJECTIVE: ITIL Foundation Training for ASIS/CIO in 2007 and other staff if funds allow. Train additional staff in 2008.

Chapter 3 – IT Specific Economic-Driven Requirements or Opportunities

See I. B. 4 & 5 above. DENR is in the process of structural and functional change. In this transitional year for DENR, the areas of activity we have described in the preceding section are expected to improve the economics of IT service delivery. Cost accounting will be a major focus area in the 2007 – 2009 planning biennium. Standardization, consolidation and resource sharing will all be monitored for realization of fiscal benefits.

Chapter 4 – IT Initiatives Developed From and Aligned With Plan Drivers

Complete organizational and cultural change through an EA is a full plate for DENR IT resources in 2007 and 2008. Combined with uncertainty of expenses related to SB 991, DENR will not pursue many of the initiatives that would complement our business objectives until the infrastructure is stable.

Nonetheless, DENR has begun exploring and hopes to implement the following initiative during 2007 – 2009:

IT Initiative: Department-wide Document Management System (NOTE: this initiative is being considered within DENR for an expansion budget request)

Name:

Digital Document Management

Description:

The Digital Document Management Project is a collaborative effort among DENR divisions to standardize and automate our approach to document generation, access and storage. DENR would use business policy and standards to manage documents and technology to facilitate both the scanning of paper documents and the generation of digital documents.

Objectives/Benefits:

- Reduce paper use
- Reduce file storage space
- Automate document generation, storage, archive and retrieval, workflow management (streamline business processes such as permitting and enforcement)
- Improve security

- Meet legislative and Commission requests for documents in digital format
- Meet Record Center and State Archives requirements

Timeframe:

July 2007 – April 2008

Relationship with Other Agency Initiatives / Projects:

- Other DENR Projects – This is a department-wide project that will include all DENR divisions when fully implemented.
- Existing DENR Technical Architecture – DENR's IBEAM technical architecture can accomplish a high degree of document generation and management. This project will need to reconcile the right balance and symmetry with IBEAM.

Relationship with Statewide Initiatives / Projects

- State Public Key Infrastructure (PKI) – Statewide electronic signature standards may be required for electronic document signatures.
- State ITS / EDM – DENR ITS is making a business case to use Documentum. Current cost projections will be compared with other solutions for the most cost effective choice.

Order-of-Magnitude Costs:

Cost estimates are based on using State ITS EDS (Documentum). The first year cost is \$394,000. Initial phase includes nine (9) divisions at an estimated 5-year adjusted cost of \$735,000. Funding would be from state receipts, state appropriations and federal grants. Recurring money would need to be secured. Funds would purchase equipment, services, software licenses, internal staff and outside consulting.

[end of DENR plan]